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Phoenix Center Policy Paper Number 18:

***Set It and Forget It?
Market Power and the Consequences of Premature
Deregulation in Telecommunications Markets***

George S. Ford, PhD
Lawrence J. Spiwak, Esq.

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George S. Ford, PhD[†]
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Abstract: Fifty years ago, U.S. Supreme Court Justice Felix Frankfurter warned the Federal Communications Commission not to view “competition” in an “abstract, sterile way.” To illustrate the dangers of using such an “abstract” approach to the key issue of ILEC market power, this paper uses the Commission’s 1999 decision to de-regulate the prices for Special Access telecommunications services as a case study, wherein the Commission abandoned its own general framework for competition analysis in favor of using abstract notions of potential competition.

As demonstrated herein, the Commission’s deregulatory scheme for Special Access has produced *substantial* and *sustained* price increases for Special Access services where pricing flexibility is granted. Based on the results of an econometric model, these price increases are found to be the consequence of ILEC market power rather than price adjustments reflecting costs. The empirical model suggests that Special Access service is priced at about three times incremental cost, and this results is in line with other recent studies of market power in Special Access markets (*e.g.*, Rappoport, Taylor *et al.*, 2003), which find that the Bells

[†] Adjunct Fellow, Phoenix Center; Chief Economist, Z-Tel Communications.

[‡] President, Phoenix Center for Advanced Legal & Economic Public Policy Studies. The views expressed in this paper are the authors’ alone and do not represent the views of the Phoenix Center, its Adjunct Fellows, or any of its individual Editorial Advisory Board members.

receive a 40 percent return on Special Access revenues of \$13.3 billion.

This evidence suggests that while admittedly imperfect prognostications about competition and market power may be acceptable *ex ante*, continued agency review of incumbent market power is not only warranted, but virtually mandatory. Further, when abstract measures of competition are found, *ex post*, to be inadequate checks on market power such as in the case of Special Access services, the continued use of such abstractions by regulatory agencies should be immediately reviewed and potentially eliminated, particularly where such failure has a significant adverse impact on consumer welfare and a deleterious effect on U.S. telecoms competition and, by extension, the economy overall.

The Commission's abstract approach to encouraging new entry and mitigating incumbent market power in the Special Access context should be a "canary in the coal mine" as to the consequences of using abstract notions of competition in the major rulemakings now pending before the Commission to facilitate Chairman Michael Powell's vision of a "digital migration" via so-called "inter-modal" competition. Indeed, as the D.C. Circuit recognized over twenty years ago: "Complex regulation must still be credible regulation" and any failure by the FCC to meaningfully enforce the Communications Act deprives "regulated entities, their competitors [and] the public of rights and economic opportunities without the due process the Constitution requires". Viewing competition in an abstract way failed miserably for Special Access services and this fact cannot be ignored in future proceedings at the FCC.

U.S. consumers deserve far more than a perfunctory "Ron Popiel Chicken Rotisserie Oven – set it and forget it" approach to the very real problem of ILEC market power, lest the negative effects of Special Access deregulation be replicated in other markets. While no doubt reducing its work load, the FCC simply cannot assume-away ILEC market power and, as Chairman Powell has recently attempted to do, eliminate it from the public lexicon altogether. Instead, responsible public policy requires the Commission to return the core unresolved issue of incumbent

market power to center-stage and address it in an intellectually honest and definitive manner. As such, it is incumbent upon the FCC to fulfill their core function under the Communications Act – *i.e.*, prevent dominant firms under their jurisdiction from gouging consumers and stymieing competition via the unfettered abuse of their market power.

Equally as important, if the evidence suggests a regulatory failure to mitigate the incumbents’ market power that produces clear adverse effects on U.S. consumer welfare and the economy, then we come back full circle regarding the FCC’s overall analytical approach of how we should move from “one” to “many” – *i.e.*, given the obvious fact that the ILEC’s can and will seek to exercise their market power to “deny, delay and degrade” new entry, then a more thorough look at the incumbents’ market power by the Commission in the first instance is in order as the FCC attempts to facilitate Chairman Powell’s vision of a “Digital Migration.”

TABLE OF CONTENTS:

| | |
|--------------------------------------------------------------------------------------------------|----|
| I. Introduction | 5 |
| II. <i>Case Study: Examining The Commission’s Deregulatory Paradigm for Special Access</i> | 10 |
| A. What is Special Access? | 10 |
| B. The 1999 <i>Pricing Flexibility Order</i> | 11 |
| 1. The FCC’s Approach to Defining the Appropriate Geographic Market for Analysis | 14 |
| 2. Sunk Costs as a Proxy for Competition | 16 |
| C. D.C. Circuit Review | 20 |
| III. Empirical Analysis | 22 |
| IV. Conclusions and Policy Implications | 27 |

I. Introduction

Much has been spoken and written regarding the appropriate role of the Federal Communications Commission ("FCC") in the 21st Century. According to FCC Chairman Michael Powell, his vision of the Commission's role is to facilitate deregulation via a "digital migration,"¹ wherein so-called "inter-modal" competition will flourish to such a degree that the incumbent monopolists' market power will be constrained, stock prices will rise, and more jobs in the U.S. equipment-manufacturing sector will be created.² For this reason, Chairman Powell has initiated several proceedings designed to accelerate this "digital migration," including, *inter alia*, the still un-released Triennial Review³, a decision as to whether RBOC "broadband" services should be reclassified as "information services" under Title I of the Communications Act⁴, a proceeding to evaluate the

¹ Remarks of Michael K. Powell, Commissioner Federal Communications Commission Before The Progress & Freedom Foundation, "*The Great Digital Broadband Migration*" Washington, D.C. December 8, 2000 (<http://www.fcc.gov/Speeches/Powell/2000/spmcp003.html>); Michael K. Powell, Chairman Federal Communications Commission Press Conference October 23, 2001 [as prepared for delivery], "*Digital Broadband Migration*" Part II (<http://www.fcc.gov/Speeches/Powell/2001/spmcp109.html>); Remarks of Michael K. Powell, Chairman Federal Communications Commission at the Associated Press Annual Meeting and General Session of the Newspaper Association of America Annual Convention (April 28, 2003) (http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-233732A1.pdf).

² See, e.g., February 26, 2003 Oral Statement of FCC Chairman Michael K. Powell Before the Subcommittee on Telecommunications and the Internet, Committee on Energy and Commerce, U.S. House of Representatives (http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-231577A1.pdf); Remarks of Michael K. Powell, Chairman Federal Communications Commission at the Goldman Sachs Communicopia XI Conference New York, NY October 2, 2002 [as prepared for delivery] (http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-226929A1.pdf); see also February 26, 2003 Written Statement of FCC Commissioner Kathleen Q. Abernathy Before the Subcommittee on Telecommunications and the Internet, Committee on Energy and Commerce, U.S. House of Representatives (http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-231535A2.pdf).

³ *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers* (CC Docket No. 01-338), *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996* (CC Docket No. 96-98), and *Deployment of Wireline Services Offering Advanced Telecommunications Capability* (CC Docket No. 98-147), __ FCC Rcd __ (adopted 20 February 2003); see also PHOENIX CENTER POLICY BULLETIN NO. 3: *The Broadband Loophole - Is Symmetrical Regulation in the Face of Asymmetrical Market Power Good Public Policy?* (19 March 2003) (<http://www.phoenix-center.org/PolicyBulletin/PolicyBulletinNo3.pdf>).

⁴ *In re Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services*, Notice of Proposed Rulemaking, FCC 01-360, __ FCC Rcd __ (rel. December 20, 2001).

appropriate regulatory framework for RBOC and ILEC in-region long-distance service outside of a separate affiliate,⁵ and potentially even a proceeding to revisit the appropriateness of Total Element Long-Run Incremental Costs (TELRIC) pricing altogether.

It is generally accepted that some degree of “workable” competition is a necessary prerequisite to deregulation,⁶ and this prerequisite is often difficult to satisfy given the ubiquity and magnitude of barriers to entry to the telecoms industry (*e.g.*, necessity of committing significant sunk costs, asymmetrical regulation, *etc.*). With the concept of “inter-modal competition,” where differentiated services supplied using dissimilar technologies (*e.g.*, wireless and wireline telephony) are considered close substitutes based on little more than theoretical oversimplifications, the Commission’s view of competition is becoming increasingly abstract. This abstraction from measurable and discernable competitive forces is not limited to telecommunications, but has allowed for rapid and unprecedented economic concentration in the media industry.⁷

⁵ *In re Section 272(f)(1) Sunset of the BOC Separate Affiliate and Related Requirements*, Further Notice of Proposed Rulemaking, FCC 03-111, __ FCC Rcd __ (rel. May 19, 2003). Among other things, what makes this NPRM so incredulous is that the Commission – citing to the presence of so-called inter-modal competition such as “Internet-based applications (*e.g.*, instant messaging, email)” (*id.* at ¶ 8) – is seeking comment on whether the RBOCs should be re-classified as non-dominant carriers for in-region inter-LATA service, even in the absence of structural safeguards in the form of separate affiliates, when the cornerstone of the FCC’s original and successful *Competitive Carrier* paradigm was the preventing dominant firms who own and control of “bottleneck” – *i.e.*, “last mile” access facilities – from exercising their market power. *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorizations Therefore*, Docket No. 79-252, 85 FCC 2d 1 (1980). As the Commission recognized over twenty years ago, a dominant firm can exercise market power when it has “sufficient command over some essential commodity or facility in its industry or trade to be able to impede new entrants. Thus, bottleneck control describes the structural characteristics of a market that new entrants must either be allowed to share the bottleneck facility or fail.” *Id.* ¶ 59. For this precise reason, the Commission held that control of bottleneck facilities was “*prima facie* evidence of market power requiring detailed regulatory scrutiny.” *Id.* at 58.

⁶ See, *e.g.*, *In re Competition in the Interstate Interexchange Marketplace*, 6 FCC Rcd 5889 (1991)(IXC Rulemaking Order); *In re Revisions to Price Cap Rules for AT&T Corp.*, Report & Order, FCC Docket No. 95-18 (rel. 12 January 1995); *In re Motion of AT&T Corp. to Be Reclassified as a Non-Dominant Carrier*, FCC 95-427, 11 FCC Rcd 3271 (rel. Oct. 23, 1995).

⁷ William Safire, *The Great Media Gulp*, NEW YORK TIMES (22 May 2003) (“The concentration of power – political, corporate, media, cultural – should be anathema to conservatives. The

(Footnote Continued. . . .)

The increasingly obvious disconnect between (de)regulatory policy and rigorous market power analysis ignores U.S. Supreme Court Justice Felix Frankfurter's fifty year-old warning to the Commission not to view "competition" in an "abstract, sterile way."⁸ Indeed, policies implemented by relying exclusively on textbook notions of competition and regulation in an industry with traits incompatible with such naïve theories fails to satisfy the Commission's statutory mandate. Further, the Commission must not ignore the effects of its decisions on consumers and social welfare. Thus, the current Commission's preoccupation with maximizing industry inputs (*e.g.*, jobs and the sales of equipment from vendors) rather than the efficient production and distribution of industry output (*i.e.*, leading to declining prices, more innovation) is misplaced. While the notion of the ILECs' "market power" has disappeared from the FCC's lexicon today⁹, the sustainability of this philosophical stance is dubious given the inevitable review of its decisions by a panel perhaps less dogmatic than Chairman Powell. In other words, deregulation by the FCC requires a thorough inquiry as to whether there are sufficient regulatory safeguards and/or competition to constrain the incumbents' market power under current market conditions (thereby allowing the regulator to forbear from its authority to "manage" market forces¹⁰). Further, given the dynamic nature of the telecoms industry, the Commission should examine and monitor the impacts the decisions the FCC makes today (and in the past) on the long-term performance of the industry as a whole.¹¹

diffusion of power through local control, thereby encouraging individual participation, is the essence of federalism and the greatest expression of democracy.").

⁸ *FCC v. RCA Communications, Inc.*, 346 U.S. 86, 93-95 (1953).

⁹ *See supra* nn. 1-2.

¹⁰ Some argue, sometimes convincingly, that unregulated monopoly is an improvement over regulated monopoly. *See, e.g.*, M. L. Spitzer & T.W. Hazlett, PUBLIC POLICY TOWARDS CABLE TELEVISION: THE ECONOMICS OF RATE CONTROL (1998).

¹¹ *See, e.g.*, *Verizon v. FCC*, 122 S.Ct. 1646, 1661 (2002) ("For the first time, Congress passed a ratesetting statute with the aim not just to balance interests between sellers and buyers, but to reorganize markets by rendering regulated utilities' monopolies vulnerable to interlopers..."); *see also Town of Concord v. Boston Edison Co.*, 915 F.2d 17, 22 (1st Cir. 1990) (Breyer, J.), *cert. denied*, 111 S. Ct 1337 (1991). ("After all, should the regulator decide that new entry is warranted, it typically has the legal authority to prevent an existing 'two-level' monopolist from improperly disadvantaging a new 'second-level' competitor by, say, refusing to deal to with it or by charging unreasonably high prices."); Walter G. Bolter *et al.*, TELECOMMUNICATIONS POLICY FOR THE 1980'S: THE TRANSITION TO COMPETITION (Prentice Hall 1984) at 359-60.

Understanding that this daunting task is easier said than done, particularly as administrative decision-making is a political process with political pressures for action,¹² the courts consistently hold that the FCC need not meet a “standard of perfection” or to “identify the optimal threshold with pinpoint precision” when promulgating its rules; but, if the Commission is going to depend on predictive forecasts, then the FCC must “identify the standard and explain its relationship to the underlying regulatory concerns.”¹³ The foregoing statement of law also raises a corollary but unanswered question – *i.e.*, if the Commission, as the expert agency, is entitled to such great deference and latitude in implementing the provisions of the Communications Act, *then doesn’t the Commission a fortiori also have a subsequent responsibility to monitor the consequences of its regulatory actions, particularly when it publicly admits that its regulatory actions are based on prognostications and imperfect measures of competition?* As explained below, the obvious answer is “yes,” particularly when the Commission’s prognostications are based *ex ante* on flawed theory and can be shown *ex post* to be incorrect.

To illustrate the dangers of using such an “abstract” approach to the key issue of ILEC market power, we will use as a case study the Commission’s 1999 decision to de-regulate the prices for Special Access telecommunications services, where the Commission abandoned its own general framework for competition analysis in favor of using crude indicators of potential competition. That is to say, the Commission’s deregulatory scheme for Special Access, which relied on abstract measures of competition, has produced *substantial* and *sustained* price increases for Special Access services where pricing flexibility is granted. Based on the results of an econometric model, these price increases are found to be the consequence of ILEC market power rather than price adjustments reflecting costs. This evidence suggests that while imperfect prognostications may be acceptable *ex ante*, it would seem that when an administrative agency repeatedly admits to such imperfection, continued agency review of incumbent market power is nonetheless warranted. Further, and perhaps more important, when abstract measures of competition are found, *ex post*, to be inadequate checks on market power such as found in the case of Special Access services, the continued

¹² Cf. *United States v. FCC*, 652 F.2d 72, 90- 91 (D.C.Cir.1980) (en banc) (“Someone must decide when enough data is enough. In the first instance that decision must be made by the Commission.... To allow others to force the Commission to conduct further evidentiary inquiry would be to arm interested parties with a potent instrument for delay.”).

¹³ See, e.g., *WorldCom v. FCC*, 238 F.3d 449, 461-62 (D.C. Cir. 2001).

use of such abstractions by regulatory agencies should be immediately reviewed and potentially eliminated, particularly where such failure has a significant adverse impact on consumer welfare and a deleterious effect on competition in the U.S. telecommunications industry and, by extension, the economy overall.

Our analysis proceeds as follows. In Part II, we describe the FCC's philosophical and analytical approach to de-regulating Special Access services, with particular attention paid as to how the FCC approached the key issue of ILEC market power and market definition, as well as to why the D.C. Circuit upheld the Commission's rulemaking as lawful even though it found its policy decisions questionable. In light of the Commission's recent decision in its Triennial Review of the unbundling obligations removed from the list of unbundled elements some high capacity circuits, thus preventing entrants from purchasing such circuits in many markets at cost-based prices,¹⁴ an analysis market power over Special Access services is particularly timely.¹⁵

In Part III, we then specify an empirical model to estimate the extent to which the near ubiquitous price increases for Special Access services in deregulated markets can be attributed to market power rather than costs. This exploratory empirical analysis suggests that the vast majority of observed price increases in deregulated markets can be credited to the increased exercise of market power, with cost variation contributing little to price increases.

Finally in Part IV, we conclude by examining briefly the legal and policy implications of the Commission's approach to ILEC market power in the Special Access context, with a focus on pending and future proceedings at the agency. As explained below, a key lesson can be learned from the Commission's de-regulation experience for Special Access – *i.e.*, although the Commission may rely on theoretical concepts of competition as a substitute for a rigorous analysis of market power to develop the initial parameters of a regulatory paradigm, it does not *a fortiori* mean that the Commission can abrogate its statutory obligation under the Communications Act to monitor the subsequent consequences of its

¹⁴ See *supra* n. 3.

¹⁵ C.f. Mark Naftel and Lawrence J. Spiwak, *THE TELECOMS TRADE WAR: THE UNITED STATES, THE EUROPEAN UNION AND THE WTO* (Hart Publishing 2001) at 207 (the "FCC found that most CLECs had more success reselling specialized services, such as Special Access and local private line services, than they have had selling basic switched local service to end users. In other words, *they bleed red ink.*")

regulatory actions on the market. As such, we come back full circle, because if the evidence suggests a regulatory failure, then perhaps a more thorough look at the incumbents' market power in the first instance would have been in order.

II. Case Study: Examining The Commission's Deregulatory Paradigm for Special Access

A. What is Special Access?

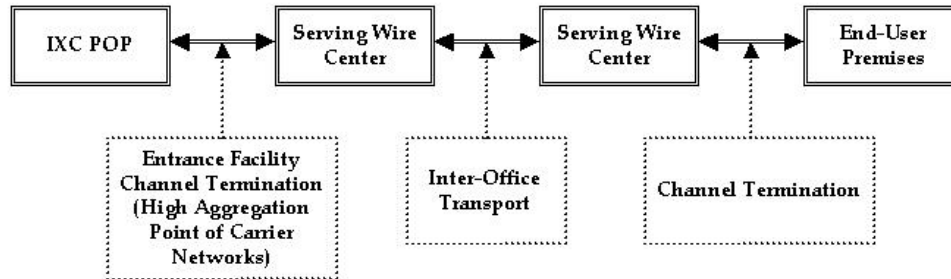
Special Access is the backbone of the telecommunications network. These high capacity circuits – such as DS-0, T-1, DS-1, DS-3, and OC-N lines – are used to transport traffic between major interconnection points of the network (*e.g.*, switches, routers, *etc.*) and between such points and end-users.¹⁶ Special Access services are typically priced as three components: (1) channel terminations, (2) interoffice transport, and (3) entrance facilities.¹⁷ Channel terminations are the facilities between an ILEC serving wire center and an end-user customer. Interoffice transport consists of the facilities connecting various ILEC serving wire centers, and entrance facilities connect interexchange carriers' or CLECs' point(s) of presence (POP) and the ILEC's serving wire center. Each of these

¹⁶ The T-carrier system, introduced by the Bell System in the U.S. in the 1960s, was the first successful system that supported digitized voice transmission. The original transmission rate (1.544 Mbps) in the T-1 line is in common use today in Internet service provider (ISP) connections to the Internet. Another level, the T-3 line, providing 44.736 Mbps, is also commonly used by Internet service providers. Another commonly installed service is a fractional T-1, which is the rental of some portion of the 24 channels in a T-1 line, with the other channels going unused. Digital signal X is a term for the series of standard digital transmission rates or levels based on DS0, a transmission rate of 64 Kbps, the bandwidth normally used for one telephone voice channel. Both the North American T-carrier system and the European E-carrier systems of transmission operate using the DS series as a base multiple. The digital signal is what is carried inside the carrier system. DS0 is the base for the digital signal X series. DS1, used as the signal in the T-1 carrier, is 24 DS0 (64 Kbps) signals transmitted using pulse-code modulation (PCM) and time-division multiplexing (TDM). DS2 is four DS1 signals multiplexed together to produce a rate of 6.312 Mbps. DS3, the signal in the T-3 carrier, carries a multiple of 28 DS1 signals or 672 DS0s or 44.736 Mbps. Digital signal X is based on the ANSI T1.107 guidelines. *Source:* searchNetworking.com

¹⁷ In the special access context, entrance facilities are also called "channel terminations." We use "entrance facilities" here to distinguish those channel terminations that provide the end user connection from those that provide the connection between carrier networks.

components can have mileage charges, and interoffice transport almost always does.¹⁸

Illustration No. 1



B. The 1999 Pricing Flexibility Order

In 1990, ILECs were required to geographically average the prices for Special Access services across geographic markets. Subsequently, the Commission granted limited pricing flexibility – including de-averaging and volume and term discounts – provided there was at least some evidence of competition in the rate zone or study area.¹⁹

¹⁸ For a more thorough description, see *In re Access Charge Reform*, Fifth Report and Order and Further Notice of Proposed Rulemaking, ___ FCC Rcd ___, FCC 99-206 (rel. 27 Aug. 1999) at ¶¶ 8-10 (*Pricing Flexibility Order*).

¹⁹ *Expanded Interconnection with Local Telephone Company Facilities; Amendment of the Part 69 Allocation of General Support Facility Costs*, CC Docket Nos. 91-141 and 92-333, Report and Order, 7 FCC Rcd 7369, 7454 n.411 (1992) (*Special Access Expanded Interconnection Order*), vacated in part and remanded, *Bell Atlantic Tel. Cos. v. FCC*, 24 F.3d 1441 (D.C. Cir. 1994); *Expanded Interconnection with Local Telephone Company Facilities*, 9 FCC Rcd 5154, 5158, 5196 (1994) (*Virtual Collocation Order*) (“Expanded interconnection” refers to the interconnection of one carrier’s circuits with those of a LEC at one of the LEC’s wire centers so that the carrier can provide certain facilities-based access services); *Switched Transport Expanded Interconnection with Local Telephone Company Facilities*, CC Docket No. 91-141, Second Report and Order and Third Notice of Proposed Rulemaking, 8 FCC Rcd 7374, 7425-32 (1993) (*Switched Transport Expanded Interconnection Order*) (An expanded interconnection offering is deemed “operational” when at least one interconnector has taken a switched cross-connect element), *aff’d*, *Virtual Collocation Order*, 9 FCC Rcd 5196.

In 1999, the FCC released its *Pricing Flexibility Order* in order to allow, *inter alia*, “incumbent LECs progressively greater pricing flexibility [for Special Access services] as they face increasing competition.”²⁰ Used often by the Commission, limited pricing flexibility is a mechanism that deregulates narrow portions of a dominant firm’s business as it presumably becomes competitive without having to deregulate the entire firm.²¹

In its *Pricing Flexibility Order*, the Commission established two phases (Phase I and Phase II) of pricing flexibility for Special Access services. Under Phase I, the Commission would allow the ILEC to provide volume and term discounts of current rates or enter into contract tariffs,²² while Phase II pricing flexibility would removed the ILEC from price cap regulation altogether.²³

To obtain Phase I pricing flexibility under the Commission’s regulations, a price cap LEC must show that in each Metropolitan Statistical Area (MSA) competitors unaffiliated with the price cap LEC have collocated:

- (1) In fifteen percent of the petitioner’s wire centers, and that at least one such collocater in each wire center is using transport facilities owned by a transport provider other than the price cap LEC to transport traffic from that wire center; or
- (2) In wire centers accounting for 30 percent of the petitioner’s revenues from dedicated transport and Special Access services other than channel terminations between LEC end offices and customer premises, determined as specified in Sec. 69.725 of this part, and that at least one such collocater in each wire center is using transport facilities owned by a transport provider other than the price cap LEC to transport traffic from that wire center.²⁴

²⁰ *Pricing Flexibility Order*, *supra* n. 18 at ¶ 67.

²¹ See, e.g., *In re Competition in the Interstate Interexchange Marketplace*, 6 FCC Rcd 5889 (1991)(IXC Rulemaking Order); *In re Revisions to Price Cap Rules for AT&T Corp.*, Report & Order, FCC Docket No. 95-18 (rel. 12 January 1995); *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket No. 87-313, Second Report and Order, 5 FCC Rcd 6786, 6818-20 (*LEC Price Cap Order*).

²² See 47 C.F.R. § 69.727 (a)

²³ See 47 C.F.R. § 69.727 (b)

²⁴ See 47 C.F.R. § 69.709(b) *et seq.*

For channel terminations, a stricter standard is applied given that entry costs for channel terminations are higher. Phase I relief for channel terminations requires collocations in 50 percent of wire centers or in wire centers accounting for 65 percent of revenues.

The standards for Phase II pricing flexibility are nearly identical except that non-affiliated carriers must have collocated in 50 percent of the petitioner's wire centers or in wire centers accounting for 65 percent of the petitioner's revenues from dedicated transport and Special Access services other than channel terminations between LEC end offices and customer premises.²⁵ Phase II flexibility requires a higher "competition" standard than Phase I, since the ILEC can remove services sold in such markets from price cap regulation, whereas Phase I flexibility retains price caps but allows the ILEC to provide volume and term discounts of current rates or enter into contract tariffs.²⁶ Consumers can continue to purchase Special Access services at price-cap rates with Phase I relief, but this option is eliminated with Phase II relief.

The deregulatory paradigm for Special Access services established by the Commission consists of (at least) two primary components relevant to an economic and legal analysis. First, the Commission defined the geographic market over which flexibility is granted as an MSA. MSAs are rather large geographic areas that extend well beyond the core population and business density of the cities contained therein. Second, pricing flexibility is not granted in response to a reduction in market power, but in response to the number of central offices in which at least one competitor has collocated. While measurable, collocation is not necessarily related in a meaningful way to the extent of competition, so the Commission's deregulatory framework relies on a highly indirect measure of competition. Both features of the Commission's paradigm – large geographic markets and indirect measures of competition – create the potential for market power to be exercised by incumbent firms. Whether or not this potential is realized is an empirical question, which we turn to in Section III.

²⁵ See 47 C.F.R. § 69.709(c) *et seq.*

²⁶ See *id.* nn. 22-25.

1. *The FCC's Approach to Defining the Appropriate Geographic Market for Analysis*

According to the Commission, the relevant geographic market for regulatory purposes should be defined “narrowly enough so that the competitive conditions within each area are reasonably similar, yet broadly enough to be administratively workable.”²⁷ Agreeing with the ILECs,²⁸ the Commission chose Metropolitan Statistical Areas or “MSAs”²⁹ as the relative geographic area for purposes of analysis because, reasoned the Commission, MSAs are a “logical basis for measuring the extent of competition” as MSAs “best reflect the scope of competitive entry”.³⁰ Entrants, however, contested the notion that MSAs coincide with the scope of competitive entry, arguing that the geographic-specificity of telecommunications plant tends to support small geographic markets.³¹ While the Commission recognized that telecommunications investment is “largely specific to a location,” it did not place substantial weight on this fact when selecting market boundaries.³²

Both wider and narrower market boundaries were proposed, including statewide and central office specific boundaries (among others). Limiting the market to central offices was rejected on administrative grounds, with the Commission arguing that “defining geographic areas smaller than MSAs would force incumbents to file additional pricing flexibility petitions and, although these petitions might produce a more finely-tuned picture of competitive conditions, the record does not suggest that this level of detail justifies the increased expenses and administrative burdens associated with” such a definition.³³ Conversely, the Commission believed that providing state-wide pricing flexibility would “increase the likelihood of exclusionary behavior by incumbent LECs by giving them flexibility in areas where competitors have not

²⁷ *Id.* at ¶ 71.

²⁸ *Id.* at n. 196.

²⁹ See 47 C.F.R. § 22.909(a).

³⁰ *Pricing Flexibility Order* at ¶ 72.

³¹ *Id.* at ¶ 74 (“CTSI and KMC suggest that competition may exist in only a small part of an MSA”).

³² *Id.* at 81.

³³ *Id.* at ¶ 74.

yet made irreversible investments in facilities.”³⁴ The Commission also recognized that its MSA definition potentially presented the same problem and might “lead to higher rates for access to some parts of an MSA that lack a competitive alternative. . . .”³⁵

Selecting market boundaries turned on the tradeoff between the risk of increased market power in some parts of the market and the costs of administering a deregulatory paradigm (for both the Commission and the ILECs).³⁶ Presumably, administrative costs rise as the size of the market falls, thereby increasing the number of markets and requiring more numerous applications for flexibility. The Commission believed that the MSA was appropriate because administrative costs were reasonable and its triggers were “sufficient to preclude the incumbent from exploiting any monopoly power over a sustained period.”³⁷ If, however, market power is observed under the Commission’s deregulatory paradigm, then either the Commission’s triggers are

³⁴ *Id.* at ¶ 72.

³⁵ *Id.* at ¶ 142 (emphasis supplied). The problem with overly broad market definitions is usefully evaluated using the economic theory of fragmented competition. To illustrate the concept, consider a simple example. Suppose there are two islands, A and B. On Island A, both firms 1 and 2 offer “Special Access” services to end users, but only Firm 1 offers service on Island B. Island A is a contested or competitive market, whereas Island B is a monopoly. Economists refer to this competitive scenario as fragmented duopoly or fragmented competition. Basu, K. & Bell, C. *Fragmented Duopoly: Theory and Applications to Backward Agriculture*, JOURNAL OF DEVELOPMENT ECONOMICS, 36, 145-165 (1991); Beard and Ford (2003), Beard, Ford, Hill, and Saba (2003). The most interesting case of fragmented competition is when firms are required to offer services at the same price across the two segments (or islands). Firm 2, providing service only on Island A, behaves in a traditionally duopolistic fashion since its entire market is contested. Alternately, Firm 1, serving both contested and captured segments, must consider the implications from both markets when setting its single price. A cross-market balancing act by Firm 1 renders an equilibrium price that lies between the monopoly and competitive (duopolistic) price. *Importantly*, if prices can differ between islands, then the two islands are treated independently by Firm 1 with the monopoly price prevailing in the captured segment (Island B) and the competitive price prevailing in the contested segment (Island A). Firm 1’s profits are higher if it can price discriminate across markets, so Firm 1 prefers to segment the two markets. Oddly, despite the ability to exercise market power, segmenting the market was viewed as desirable by the Commission: “incumbent LECs are no longer required to choose between lowering a rate throughout the area at issue or not lowering the rate at all.” *Id.* at ¶ 122.

³⁶ Lawrence J. Spiwak, *What Hath Congress Wrought? Reorienting Economic Analysis of Telecommunications Markets After the 1996 Act*, ANTITRUST (Spring 1997) at 33-34.

³⁷ *Pricing Flexibility Order*, *supra* n. 18 at ¶ 141.

inadequate indicators of competition or its market boundaries are too wide (or both).³⁸

One distinction between Phase I and II relief with respect to market definition is worth discussing. With Phase I relief, a customer can continue to purchase Special Access services at regulated (price cap) prices. This option is eliminated with Phase II relief. Because the administrative costs of price caps are incurred regardless of Phase I or Phase II relief (until, at least, all markets receive Phase II relief), the price-cap ceiling in Phase I markets is a very low cost stopgap measure against the exercise of market power in those markets. Why the Commission did not maintain this stopgap measure in Phase II markets is unclear, though probably related to the desire to completely deregulate prices. However, given the shaky competitive standards relied upon to deregulate this market and the failure to perform a market power analysis, the price-cap stopgap measure may have been a reasonable component of Phase II relief. This stopgap should have no effect on the ILECs' incentive to cut price. Unless Special Access circuits in different markets or areas of single market are substitutes or compliments in demand, the inability to raise price for some customers should not affect the decision to lower prices for others.³⁹ Therefore, downward price pressures should be unaffected by a price-cap ceiling on rates.

2. *Sunk Costs as a Proxy for Competition*

Perhaps the most puzzling aspect of the Commission's deregulatory paradigm is the decision to measure the extent of competition and the prospects for entry by the degree to which entry requires sunk costs.⁴⁰ While economic theory does suggest that sunk investments represent a commitment by entrants thereby reducing the expected success of predatory actions by incumbent firms,

³⁸ In contrast to its wide geographic market boundaries for high capacity circuits in the pricing flexibility context, for high capacity unbundled network elements ("UNEs") the Commission recently defined the relevant market for similar services on a point-to-point basis (*e.g.*, between two central offices or perhaps between two city-pairs) in their Triennial Review. *See supra* n. 3.

³⁹ *See* Jean Tirole, *THE THEORY OF INDUSTRIAL ORGANIZATION* (1995) at p. 70. Prices also may be related across markets or areas if the marginal costs of providing the different services are related.

⁴⁰ *See, e.g., Pricing Flexibility Order* at ¶ 94 ("we conclude that it is appropriate to give incumbent LECs pricing flexibility when competitors have made irreversible, sunk investment in facilities").

the primary role of sunk costs in economic theory is to serve an entry barrier.⁴¹ Entry is the driving force of competition, and impediments to entry are not usually (or legitimately) associated with the prospects for effective competition. While the Commission recognizes this fact in other contexts, the entry deterring aspects of sunk costs were completely ignored in its *Pricing Flexibility Order*.⁴²

In its *Pricing Flexibility Order*, the Commission adopted a collocation-based trigger for granting pricing flexibility for Special Access service because collocations required “irreversible, or ‘sunk’ investment in facilities used to provide competitive services.”⁴³

... collocation usually represents a financial investment by a competitor to establish facilities within a wire center. ... [T]he investment in transmission facilities associated with collocation arrangements is largely specific to a location; the competitive LEC’s facilities cannot, for the most part, easily be removed and used elsewhere if entry does not succeed.⁴⁴

⁴¹ See Tirole, *supra* n. 39, Ch. 8; John Sutton, SUNK COST AND MARKET STRUCTURE (1995).

⁴² See, e.g., *In re Implementation of Local Competition in Telecommunications Act of 1996*, 11 FCC Rcd 15499, 15857 ¶ 704 (1996) (Section 251 First Report and Order); *In re Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, __ FCC Rcd __, FCC No. 99-238 (rel. Nov. 5, 1999) (*UNE Remand Order*); *Triennial Review*, *supra* n. 3; *In re Implementation of Section 19 of the Cable Television Consumer Protection and Competition Act of 1992*, Annual Assessment of the Status of Competition in the Market for Delivery of Video Programming, 9 FCC Rcd 7442, Appendix H (1994) (*Appendix H*).

⁴³ *Id.* at ¶ 79. See also *id.* at ¶ 94 (“we conclude that it is appropriate to give incumbent LECs pricing flexibility when competitors have made irreversible, sunk investment in facilities”)

⁴⁴ *Id.* at ¶ 81. The Commission did note, however, that while the presence of an operational collocation arrangement in a wire center almost always implied that a competitor has installed transmission facilities to compete with the incumbent in the past, this correlation between operational collocation arrangements and competitive transport facilities is somewhat attenuated by the advent of services such as digital subscriber line (DSL) services – *i.e.*, competitors providing these services usually collocate in order to gain access to the incumbent’s copper loops, a necessary input for DSL service, not to compete with the incumbent for the provision of transport services. As such, to ensure that its triggers provide a “clear picture” of competitive conditions on a going-forward basis, the FCC required incumbent LECs to show that at least one competitor relies on transport facilities provided by a transport provider other than the incumbent at each wire center listed in the incumbent’s pricing flexibility petition as the site of an operational collocation arrangement. *Id.* at ¶ 82.

As an initial matter, the FCC reasoned that it is appropriate to focus on the sunk investments because:

An incumbent monopolist will engage in exclusionary pricing behavior only if it believes that it will succeed in driving rivals from the market or deterring their entry altogether. ... Once multiple rivals have entered the market and cannot be driven out, rules to prevent exclusionary pricing behavior are no longer necessary. Investment in facilities, particularly those that cannot be used for another purpose, is an important indicator of such irreversible entry. ...[T]he presence of facilities-based competition with significant sunk investment makes exclusionary pricing behavior costly and highly unlikely to succeed.⁴⁵

Note that the Commission's logic addresses only the effect of sunk costs on *exit*, not entry. This selective use of economic theory produced an important analytical conflict in the Commission's decision. Specifically, the Commission recognized the potential for its broadly defined markets to allow the ILEC to exploit market power in non-competitive segments of the MSA, stating: "... *such relief might lead to higher rates for access to some parts of an MSA that lack a competitive alternative....*"⁴⁶ Yet, the Commission dismisses the importance of the non-competitive segments by contending "unreasonably high rates ... will induce competitive entry."⁴⁷ This expectation contradicts the fundamental premise of the Commission's deregulatory paradigm, however. Sunk costs deter entry and may allow market power to be exercised without fear of entry.⁴⁸ Because entry requires sunk costs, it is obviously unreasonable for the Commission to rely heavily on entry to remedy problems with an overly broad market definition. Ignorance is no defense. Despite ignoring the entry deterring effects of sunk costs in its *Pricing Flexibility Order*, the Commission has in many

⁴⁵ *Id.* at ¶ 80.

⁴⁶ *Id.* at ¶ 142 (emphasis supplied).

⁴⁷ *Id.* at ¶ 144.

⁴⁸ Entry deterrence is even more likely when the ILEC can signal to entrants that post-entry competition will be tough. This signal is easily sent to entrants because the deregulatory paradigm allows the incumbent to cut price in contested segments.

other cases relied heavily on these very effects to justify its other regulatory efforts.⁴⁹

There are other problems with the Commission's reasoning. First, while the Commission averred that its collocation triggers were "sufficient to preclude the incumbent from exploiting any monopoly power over a sustained period," the Commission engaged in no market power analysis to affirm its position.⁵⁰ Without evidence, the Commission's expectations are nothing more than assertions, and while expert agencies have substantial deference, there must be "rational connection between the facts found and the choice made."⁵¹ The Commission presented no evidence in support of its assertion that its collocation triggers represented sufficient competition to check ILEC market power.

Second, collocation is a necessary but not sufficient condition for Special Access competition.⁵² The presence of a collocater that uses its own transport to carry traffic from a LEC serving wire center shows at most some competition for entrance facilities – *i.e.*, the connection between the ILEC's and IXC's or CLEC's networks. It is in no way probative of competition for interoffice transport or channel terminations. The only competitive presence that any ILEC relied upon to gain pricing flexibility for special access was for entrance facilities. Yet, under the FCC's "bright line" test some competition for this one component of special access was sufficient to allow deregulation of interoffice transport and channel terminations as well.

Moreover, apart from this overriding flaw, the presence of collocation in a central office only indicates that an entrant *may* have *tried* to enter the Special Access (or some other) market at some point in the past requiring collocation. Collocation triggers ignore what market the collocater actually served or serve, the success of such entry, or the entrant's continued presence in the market. Continuing to ignore the profitability and continued success of collocations is

⁴⁹ See, e.g., *Triennial Review*, *supra* n. 3; *Section 251 First Report and Order*, *supra* n. 42 at ¶ 377; *UNE Remand Order*, *supra* n. 42, ¶¶ 75, 77 ("It is generally recognized that the need to incur sunk costs can constitute a barrier to entry").

⁵⁰ *Pricing Flexibility Order* at ¶ 141.

⁵¹ *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962).

⁵² Even the Commission recognizes the dubious link ("...correlation between operational collocation arrangements and competitive transport facilities is somewhat attenuated ...") *Pricing Flexibility Order* at ¶ 82.

odd, given that most facilities-based CLECs operating in 1999 are now either bankrupt or out of business altogether.⁵³

C. D.C. Circuit Review

The D.C. Circuit reviewed the Commission's *Pricing Flexibility Order* on appeal in *WorldCom v. FCC*.⁵⁴ As a general rule of administrative law, a reviewing court is required to accord the FCC, as the "expert agency", great deference when it administers its own statute, provided that it shows the "whys and wherefores" of its reasoning.⁵⁵ For this reason, the D.C. Circuit stated that it was not their role "to second guess the FCC's policy judgment, so long as it comports with established standards of administrative practice"⁵⁶ and, accordingly, reviewed the FCC's *Pricing Flexibility Order* in this light.

For example, several petitioners challenged the FCC's use of collocation as a proxy for competition as arbitrary and capricious. Although the court repeatedly found that "[I]t may well be that collocation is a poor market share as petitioners attest"⁵⁷ and may indeed have "faults as a measure of competition",⁵⁸ the fact that that "the FCC chose to rely upon an admittedly imperfect measure of competition does not render its use arbitrary and capricious." In the court's

⁵³ A similar error was made in the Commission's unbundled switching restriction for the top 50 MSAs. In its UNE Remand Order, the Commission removed from the minimum list of unbundled elements switching services in the top 50 MSAs for customers with more than three access lines at a single location. The decision was based on the number of CLEC switches deployed in large markets. Since the Commission's Order, nearly every CLEC that deployed switches has declared bankruptcy. See, e.g., *UNE Remand Order*, *supra* n. 42; Mitchell Pacelle and Dennis K. Berman, *Allegiance Telecom Seeks Bankruptcy Protection*, WALL STREET JOURNAL (May 15, 2003).

⁵⁴ See *supra* n. 13.

⁵⁵ Specifically, a reviewing court must consider whether the FCC's actions are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). This is a "deferential standard" that "presume[s] the validity of agency action." *Southwestern Bell Tel. Co. v. FCC*, 168 F.3d 1344, 1352 (D.C. Cir.1999); accord *Jersey Shore Broadcasting Corp. v. FCC*, 37 F.3d 1531, 1537 (D.C. Cir.1994); *City of Holyoke Gas & Electric Dept. v. FERC*, 954 F.2d 740, 743 (D.C. Cir. 1992) ("Since it is already doing the relevant calculation, it is a small matter to abide by the injunction of the arithmetic teacher: Show your work! For the Commission to do less deprives the [consumer] of a rational explanation of its decision.").

⁵⁶ *WorldCom*, *supra* n. 13 at 457-58.

⁵⁷ *Id.* at 458.

⁵⁸ *Id.*

view, even though the FCC “readily admit[ed] that its decision to adopt the thresholds contained in the *Pricing Flexibility Order* was dependent, at least in part, on the agency’s predictive forecasts”, there is “no statutory requirement that the FCC be confident to a metaphysical certainty of its predictions about the future of competition in a given market before it may modify its regulatory scheme.”⁵⁹ According to the D.C. Circuit:

The FCC readily admits that its decision to adopt the thresholds contained in the *Pricing Flexibility Order* was dependent, at least in part, on the agency’s predictive forecasts. Despite their inherent uncertainty, there is little question that agency prognostications of this sort may be used in the formulation of policy; “it is within the scope of the agency’s expertise to make such a prediction about the market it regulates, and a reasonable prediction deserves our deference notwithstanding that there might also be another reasonable view.” *Environmental Action, Inc. v. FERC*, 939 F.2d 1057, 1064 (D.C. Cir. 1991). There is no statutory requirement that the FCC be confident to a metaphysical certainty of its predictions about the future of competition in a given market before it may modify its regulatory scheme.⁶⁰

Equally as significant, the court also found that the FCC’s decision to make ease of administration and enforceability a consideration in setting its standard for regulatory relief was not arbitrary and capricious. In the court’s view, “[s]o long as the FCC’s proxy is reasonable, as it is here, we have no basis upon which to require the FCC to engage in a more searching analysis of competition before granting pricing flexibility.”⁶¹

The court also gave the FCC great deference as to its choice of MSA’s as the appropriate relevant market for analysis. In the court’s opinion:

At bottom, petitioners’ objection to the FCC’s decision to offer pricing flexibility on an MSA-wide basis amounts to a difference

⁵⁹ *Id.*

⁶⁰ *Id.* at 459.

⁶¹ *Id.*

in policy preferences. This is not a sufficient basis upon which to upset the FCC's determination. The FCC considered alternatives to MSA-wide relief and determined that, on balance, these alternatives would be less beneficial to consumers and regulated entities. As the FCC provided an adequate explanation for this conclusion, we uphold the Commission's conclusion.⁶²

The court rejected petitioners' claims that the trigger-mechanisms adopted by the Commission on similar grounds:

Petitioners' objections to the specific collocation thresholds established by the FCC are no more than policy differences with the Commission. Like any agency, the FCC must provide a rational basis when setting a number for a standard, but it is not held to a standard of perfection.⁶³

In the court's view, the "FCC is not required to identify the optimal threshold with pinpoint precision. It is only required to identify the standard and explain its relationship to the underlying regulatory concerns." As such, the court held that the Commission's approach in the *Pricing Flexibility Order* was "precisely the sort of 'rational legislative-type judgment' the FCC is empowered to exercise and we are required to respect."⁶⁴

III. Empirical Analysis

As noted above, the Commission believed that the combination of its collocation triggers and MSA market definition were "sufficient to preclude the incumbent from exploiting any monopoly power over a sustained period"⁶⁵ and the D.C. Circuit, according the FCC great deference as the "expert agency" upheld the Commission's overall policy approach, even though it expressed reservations as to the Commission's underlying methodologies. Now that the deregulatory paradigm has been implemented, it is worthwhile to evaluate the accuracy of the Commission's expectation and the court's caveats. If an

⁶² *Id.* at 461.

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ *Pricing Flexibility Order* at 141.

increased exercise of market power is observed in Special Access markets, then either the Commission's triggers are inadequate indicators of competition, its market boundaries are too wide, or the sunk costs of entry prohibit an entry response to higher prices in uncompetitive segments of the deregulated market (or some combination of these).

Deregulated tariffed prices for special access services are nearly ubiquitously higher than regulated prices (see Table 1 for examples), and for the data we collected, very few price reductions were observed over time for deregulated prices (*i.e.*, only 12 of 135 prices fell with about a 5% reduction on average). Thus, the price increases have been sustained over no less than an 18-month period. Simply observing higher prices for Special Access services *may* not necessarily be reliable evidence of the exercise of market power. According to the Commission, price increases for deregulated special access services may arise from two sources: (1) costs differences within an MSA and (2) market power exercised in the non-competitive segments of the MSA. By incorporating data on costs and demand, the unique contributions of cost and market power can be approximated. The potential for cost differences also is minimized purposefully by comparing prices from identical pricing zones (which are defined by the ILEC). Further, it is probably *not* the case that marginal (incremental) costs vary substantially across markets, even though average fixed costs may. The Commission noted, "variable costs are a small fraction of total costs." Without much variation in marginal cost, optimal prices will not vary either. Given that the ILECs do very little de-averaging within states, and in some cases across states, cost-based explanations for price differentials in deregulated markets lack force.

Though faced with a number of data limitations (*e.g.*, quantities consumed of Special Access services are not available), an exploratory empirical analysis of the effects of the Commission's deregulatory experiment is possible. This empirical analysis is based on the following simple conceptual framework. Let the regulated price be represented as a markup over incremental cost (λ), such that $P_R = \lambda C$, where C is incremental (marginal/variable) cost. The regulated markup λ can vary by jurisdiction. In the absence of regulation, the markup over cost will be a function of the own-price elasticity of demand (η), where profit maximization renders a deregulated price equal to $P_D = [\eta/(1 + \eta)]C$.⁶⁶ The own-

⁶⁶ The term $[\eta/(1 + \eta)]$ is the profit-maximizing markup without regulatory constraint. See M. Waterson, *ECONOMIC THEORY OF THE INDUSTRY* (1984), p. 3.

price elasticity of demand may vary by jurisdiction, but this variability need not directly be related to those factors causing λ to vary. Assuming there is some known set of factors that determine η and λ , it is possible to estimate both parameters.

Because $C = P_R/\lambda$, the deregulated price can be written as

$$P_D = \eta/(1 + \eta) \cdot (1/\lambda) \cdot P_R. \quad (1)$$

Substituting into Equation (1) specific functional forms and determining factors for the parameters of interest, Equation (1) can be rewritten as the regression equation,

$$P_D = \exp(\alpha_1 Y + \alpha_2 Z + \alpha_3 R) \cdot (\beta_0 + \beta_1 \mu_L + \beta_2 \sigma_L + \beta_3 \mu_T + \beta_4 \sigma_T) \cdot P_R + \varepsilon \quad (2)$$

where Y is per-capita income, Z is the percentage of the population living in cities, R is the share of non-business to total access lines, the variables μ_i and σ_i are the averages and standard deviations of loop (subscript L) and transport costs in the state (subscript T), and ε is the econometric disturbance term. Because the profit maximizing markup $[(\eta/(1 + \eta))]$ is a non-linear function [as is its proxy $\exp(\alpha x)$], Equation (2) is estimated by non-linear least squares. The linear function βx proxies the term $1/\lambda$ in Equation (1). The profit-maximizing markup is assumed to be a function of market income, density, and customer type. From the estimates of Equation (2), we can compare three different prices. First, we observe in tariffs the regulated and deregulated prices P_R and P_D . Second, the competitive price will equal cost, and cost can be estimated using $(P_R \cdot \beta x)$, where $\beta x = 1/\lambda$ (and is computed using the estimated β coefficients from Equation (2) and the sample means of the relevant x 's).

The HAI Cost Model, Version 5.0, provides the cost data. The HAI model is designed primarily to compute the cost of DS0 loop plant and supporting facilities, so we limit our empirical analysis to DS0 digital special access circuits. Income and population data are from the Census Bureau, and the share of non-business lines is from ARMIS.⁶⁷ Further research should consider larger Special

⁶⁷ ARMIS data are available (at no charge) from the FCC website (www.fcc.gov). Census data are available at www.census.gov.

Access circuits (DS1, DS3, and OC-N circuits) that represent a greater share of market revenues.

Prices are computed for 10-mile circuits and include two channel terminations, a fixed mileage charge for transport, and a per-mile charge for transport (multiplied by 10).⁶⁸ Prices are interstate tariff rates effective as of May 1, 2002, August 1, 2002, December 31, 2002, and January 31, 2003. Prices for both a month-to-month service ("DS0-M") and an optional pricing plan ("DS0-OPP") were computed, where the optional pricing plan is based on a five-year term (or, if unavailable at that term, the longest term under five years). There were a total of 188 observations for each regression (*i.e.*, four sets of prices from 47 states).⁶⁹

The results of regression equation (2) are summarized in Table 2, along with the summary statistics. For both regressions, 99% of the variation in prices is explained and all estimates are statistically significant at the 5% level or better. The average of the dependent variable (P_D) is \$260.89 for DS0-M and \$181.54 for DS0-OPP. On the other hand, regulated prices are \$230.69 for DS0-M and \$158.80 for DS0-OPP. Deregulated prices across all states, therefore, are about 13-14% higher than regulated prices, though increases for particular BOCs are often much larger (see Table 1).

The empirical model provides two sanity tests for its reasonableness. First, from the estimated β coefficients of Equation (2), cost per line can be estimated and compared to other measures of cost. At the sample means, cost per DS0 line is estimated to be about \$76 per circuit/month.⁷⁰ Across a number of states for which we had data, the TELRIC of DS0-Digital circuits ranged from a low of \$48 to a high of \$138. The average TELRIC for the sample was \$69. Thus, our estimated cost figure is reasonable. The cost calculation also provides an estimate of the competitive price (on average), because competition drives prices to cost. Second, the model provides a means by which to "back into" an estimate of the own-price elasticity of demand.⁷¹ Since a monopolist is expected to price in the

⁶⁸ In states with prices for multiple zones, the Zone 1 rate is used.

⁶⁹ Only the traditional Bell Company states are evaluated, so states excluded include Alaska, Connecticut, Hawaii, and Nevada.

⁷⁰ Cost is computed as $P_R/\beta x$ for both regressions using sample means. The cost estimates are nearly identical across regressions, with a month-to-month cost of \$78.50 and an optional pricing plan cost of \$76.16. The similarity is encouraging.

⁷¹ The own-price elasticity is computed as: $\exp(\alpha x)/(1 - \exp(\alpha x))$.

elastic region of demand, our estimate of the elasticity should be elastic. We discuss the estimated elasticities later in the text.

The regulatory markup (at the sample means) for the DS0-M circuit is about 2.90, and the deregulated markup is about 3.30. In other words, the price for Special Access service is priced at about three times its incremental cost.⁷² The deregulated margin is about 14% above the regulated markup over cost. Thus, it appears as if the increase in the markup accounts for the observed price increase. From the deregulated markup, the implied own-price elasticity of demand is about -1.40, which is elastic ($\eta < -1$) as would be expected.

Prices (and thus margins) are lower for DS0-OPP circuits, with price being set at about twice cost. The regulatory markup for the DS0-OPP circuit is about 2.1, and the deregulated markup is about 2.3 (a 10% increase in markup), which is slightly below the 14% price increase. Again, the majority of the price increase for DS0-OPP circuits is accounted for by the increased ability of the ILEC to exercise its market power. The implied own-price elasticity of demand is about -1.8, which is elastic ($\eta < -1$). Given the long contract term for DS0-OPP relative to the DS0-M, the larger elasticity is not surprising.

Our implied elasticities of demand for DS0 circuits compare favorably to those estimated by Rappaport, *et al.* (2003) using an entirely different estimation methodology. In that study, demand elasticities for DS1 and DS3 special access services are estimated to be -1.31 and -1.91, respectively. While the elasticities are not directly comparable because of differences in services, they are all elastic and in the general vicinity of -1.5. Note that the computation of the elasticity depends explicitly on the ILEC charging its theoretical (and naïve) profit-maximizing price. If the price for special access is constrained by some factor, such as the potential for regulation, then the elasticity estimates will be biased (they will be too elastic).

What is important about this empirical analysis is threefold. First, it is the first empirical assessment (to our knowledge) of the Commission's deregulatory framework for Special Access services. Given the weaknesses in the

⁷² C.f., Paul N. Rappaport, Lester D. Taylor *et al.*, *Macroeconomic Benefits from a Reduction in Special Access Prices* (2003) (available at: http://www.comptel.org/press/sparc_june12_2003_study.pdf) (showing Bells receive a rate of return of nearly 40 percent on Special Access on total revenues of \$13.3 billion).

Commission's deregulatory approach, a review of its deregulatory action seems prudent (not just by us, but by the Commission itself or the Government Accounting Office or "GAO"). Second, the price increases for Special Access services where pricing flexibility is granted appear to be predominately driven by market power and not costs. Consequently, it appears that the wide geographic markets and collocation triggers of the Commission's deregulatory paradigm have led to an increased exercise of market power in (at least some) Special Access markets, thus placing an unnecessary drain on the U.S. economy.⁷³ Third, this analysis is exploratory and limited. But, the results are sensible based on sanity checks. Obviously, a more thorough and rich empirical analysis of Special Access deregulation is warranted.

IV. Conclusions and Policy Implications

As noted above, the Commission currently has several major initiatives pending designed to accelerate FCC Chairman Michael Powell's vision of a "digital migration."⁷⁴ These pending proceedings include, *inter alia*, the still unreleased Triennial Review⁷⁵, a decision as to whether RBOC "broadband" services should be reclassified as "information services" under Title I of the Communications Act⁷⁶, a proceeding to evaluate the appropriate regulatory framework for RBOC and ILEC in-region long-distance service outside of a separate affiliate⁷⁷; and potentially even a proceeding to revisit the appropriateness of Total Element Long-Run Incremental Costs (TELRIC) pricing altogether.

Just as in the Special Access context, the central question in each of these proceedings is whether there are sufficient regulatory safeguards and/or competition to constrain the incumbents' market power. Of legitimate policy concern, therefore, is whether the Commission's philosophical and analytical approach to ILEC market power in the Special Access context will be the "canary in the coal mine" for the appropriate role and purpose of the FCC's economic regulation responsibilities under the Communications Act going forward.

⁷³ *Id.*

⁷⁴ *See supra* nn. 1-2.

⁷⁵ *Supra* n. 3.

⁷⁶ *Supra* n. 4.

⁷⁷ *Supra* n. 5.

Current Commission philosophy closely parallels the philosophy found in the Special Access decision. Like the indirect collocation triggers in the Special Access context, many of the standing Commissioners appear to place substantial reliance on “inter-modal” competition as sufficient to constrain the ILECs’ market power.⁷⁸ As with collocations, however, inter-model competition has no empirical support as a meaningful constraint on ILEC market power.⁷⁹ Part of the lack of empirical evidence stems from the fact that so few individuals view wireless and wireline telephone service as substitutes, that samples large enough for empirical analysis cannot be constructed.

Indeed, a recent Census Bureau survey of over 143,000 households reveals that only 0.11% of households (155 homes) terminated their local phone service to switch to wireless.⁸⁰ Extrapolating to all households (about 107 million), there are about 125,000 households nationwide that have stopped wireline phone service and switched to wireless.⁸¹

Using far more limited samples, some private surveys have addressed the issue of mobile and wireline substitution. A Yankee Group survey, for example, found that 3% of mobile telephony subscribers used mobile telephony exclusively, implying 97% consumed the two products together.⁸² The BOCs have used the results of this survey to support the notion of intermodal

⁷⁸ See *supra* nn 1-2.

⁷⁹ See *Editorial, Beware Media Consolidation*, BUSINESSWEEK (26 May 2003) at 126 (“[T]he FCC is seriously miscalculating the [contestable] effect of new technologies.”); *but c.f.* Remarks of Michael K. Powell, Chairman Federal Communications Commission at the Associated Press Annual Meeting and General Session of the Newspaper Association of America Annual Convention (April 28, 2003) (http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-233732A1.pdf).

⁸⁰ U.S. Census Bureau, *Computer and Internet Use Survey* (Sept. 2001).

⁸¹ STATISTICAL ABSTRACT OF THE UNITED STATES, Table No. 661 (1999).

⁸² Judy Sarles, *Wireless Users Hanging Up on Landline Phones*, NASHVILLE BUSINESS JOURNAL, (February 2, 2001) (Quoting Knox Bricken of Yankee Group). The percentage of mobile subscribers that use only mobile telephony will exceed, of course, the percentage of total households that use only mobile telephony. Given that only 40% of households have a mobile phone, a naïve estimate of the percentage of households exclusively using mobile telephony based on the Yankee Group survey is 0.012, which is much larger than the figure estimated by the Census Bureau. Unlike the Census Bureau’s survey, the Yankee Group survey is unlikely to be representative of U.S. households. See also James S. Granelli and Jube Shiver Jr., *Phone Rivalry as Simple as McDonalds vs. Burger King*, SBC Head Says Firm Says it Shouldn’t be Subsidizing Competitors with Low-Priced Lines as They Enter State Market, LOS ANGELES TIMES (May 26, 2003).

competition, but the study's authors conclude, "we don't think people are giving up their landline phones...."⁸³

They are not. At year-end 1999, there were approximately 1.36 wireline telephones (switched access lines) per household.⁸⁴ Two years later (year-end 2001), there was virtually no change in the number of wireline phones per home (1.35 wireline phones per household).⁸⁵ Over this same two-year period, mobile telephony subscription increased from 0.76 to 1.13 lines per household.⁸⁶ These quantity anecdotes can be made more relevant by considering price changes for the two products over this two-year period. From 1999 to 2001, mobile telephony prices fell by about 22% (in real terms), while wireline phone prices were relatively stable, rising by about 1% (in real terms).⁸⁷ So, while the relative prices of mobile and wireline telephony changed considerably over this time period, with wireline services becoming substantially more expensive on relative terms, the quantity of wireline subscription declined by only 1%.⁸⁸

The Commission's Special Access experiment provides a textbook example of the risk to consumers and to the economy of employing abstractions rather than rigorous market power analysis.⁸⁹ As the just-released work of Rappoport,

⁸³ Sarles, *id.*

⁸⁴ TRENDS IN TELEPHONE SERVICE, Table 11, July 2002; Stat Abstract <http://www.census.gov/statab/www/part2.html#housing>.

⁸⁵ For residential access lines, the numbers are 0.92 in 1999 and 0.90 in 2001; *id.*

⁸⁶ TRENDS, *id.*

⁸⁷ EconOne survey. CPI provided by FRED (6/99 166.2, 6/01 179.9). Wireline prices provided by Gregg (2002). The Bureau of Labor Statistic's telephone price index (including local and long distance) was roughly stable from the last quarter of 1999 to the last quarter of 2001 (falling from 100.3 to 99.7, a 0.6% reduction, or a 8% in real terms). See www.economagic.com.

⁸⁸ TRENDS IN TELEPHONE SERVICE, *supra* n. 84, Table 14.1, July 2001.

⁸⁹ Even more hypocritical is that the FCC's blasé approach towards Special Access/leased lines on the domestic front runs completely inapposite to the U.S. Government's pro-competitive approach towards Special Access/leased lines in the international arena. For example, the United States Trade Representative ("USTR") was appropriately quick to blast several countries in its recent Section 1377 Report for failing to make leased lines available on a competitive basis. (<http://www.ustr.gov/sectors/industry/Telecom1377/2003/2003-04-02-results.pdf>) In the USTR's own words:

Reasonable access to leased lines are critical for competitors in any telecommunications market – particularly for providing the "last mile" link competitors need to reach large customers. An inability to obtain these

(Footnote Continued. . .)

Taylor *et al.*, (2003) indicate, the cost of this regulatory failure to the U.S. economy is significant.⁹⁰ No doubt, market power determinations are “neither administratively simple nor easily verifiable” and “generate considerable controversy that is difficult to resolve.”⁹¹ But, this fact does not *a fortiori* mean that incumbent LECs need not demonstrate that they no longer possess market power in the provision of any services to receive pricing flexibility⁹² simply because “it would be administratively burdensome to require incumbent LECs to perform and the Commission to evaluate market share or supply elasticity analyses before the LECs may obtain any regulatory relief....”⁹³ It would seem, therefore, that while “bright-line” tests resting on naïve expectations and untested correlations may make the Commission’s work easier, “bright line” tests based on *things that can be readily counted* may not always be the correct analytical solution as competition becomes increasingly multi-dimensional and the issues the Commission has to resolve become more complex.⁹⁴

connections at reasonable rates and in a timely, non-discriminatory manner can significantly slow competitive entry. All countries cited have WTO commitments to ensure reasonable access to such lines. * * * Unreasonably high prices of leased lines in many markets ... are adversely affecting U.S. suppliers in these markets. Evidence that rates charged in these markets are multiples of rates in the U.S. and “best practice” markets such as Sweden indicates that competitive pressures in these markets have failed to bring users the benefits of reasonable pricing. *Id.* at 3-4

In addition, the U.S. Government has gone so far as to file a formal complaint against Mexico with the World Trade Organization (*WT/DS204*) for, *inter alia*, failing to make leased lines available to competitors at just and reasonable rates. (In fact, this is the very first complaint filed under the 1997 WTO Accord on Basic Telecoms Services.) Unfortunately, as before, this hypocritical “do as I say, not as I do” attitude erodes U.S. credibility abroad and correspondingly makes it more difficult for U.S. firms to compete overseas. See Naftel and Spiwak, *THE TELECOMS TRADE WAR*, *supra* n. 15.

⁹⁰ *Supra* n. 72. For example, Rappaport and Taylor *et al.* estimate that a reduction in Special Access prices of 42%, commensurate with an 11.25% rate of return on total investment, would generate 64,000 new jobs and \$11.6 billion in new economic activity in the first year alone, and the accumulated number of new jobs created would double to 132,000 in the second year (equaling a \$14.5 billion cumulative impact on the U.S. economy) as the benefits of the price reduction flows through the economy.

⁹¹ *Id.*

⁹² *Id.* at ¶ 90.

⁹³ *Id.* at ¶ 91.

⁹⁴ *Accord, Gratz et al. v. Bollinger et al.* No. 02-516. 539 U.S. ____ (Decided June 23, 2003), Slip op. at 27) (“[T]he fact that the implementation of a program capable of providing individualized consideration might present administrative challenges does not render constitutional an otherwise

(Footnote Continued. . . .)

Furthermore, while regulation does impose costs of its own, such an observation does not *a fortiori* imply the “costs of delaying regulatory relief outweigh any costs associated with granting that relief before competitive alternatives have developed to the point that the incumbent lacks market power.”⁹⁵ The Special Access case proves the point. Market power cannot be assumed away as the Commission did in the case of Special Access.⁹⁶ It seems that an effort at measuring the costs and benefits of regulatory or deregulatory action is required, particularly when the fruit of past decisions can be harvested.

A cornerstone of economic regulation is that – contrary to the antitrust context, which takes a static, case-specific approach – the Commission, as the “expert agency”, is charged with the responsibility of monitoring the dynamic U.S. telecommunications industry.⁹⁷ For this precise reason, the Supreme Court recognized sixty years ago that Congress, through the Communications Act, “gave the Commission not niggardly but expansive powers” to monitor the long-term health of the U.S. telecoms industry.⁹⁸ The courts make it crystal clear that the Commission has the legal obligation and mandate under the Communications Act to monitor the consequences of their regulatory actions.⁹⁹

problematic system.”); *Richmond v. J. A. Croson Co.*, 488 U.S. 469, 508 (1989) (citing *Frontiero v. Richardson*, 411 U.S. 677, 690 (1973) (plurality opinion of Brennan, J.) (rejecting “administrative convenience” as a determinant of constitutionality in the face of a suspect classification)).

⁹⁵ *Pricing Flexibility Order* at ¶ 90.

⁹⁶ See, e.g., Safire, *supra* n. 7; Lawrence J. Spiwak, *Ideology Over Economics*, UNITED PRESS INTERNATIONAL (6 July 2002).

⁹⁷ See, e.g., *P & R Temmer v. FCC*, 743 F.2d 918, 932 n.12 (D.C. Cir. 1984) (Bork, J.); *United States v. Storer Broadcasting Co.*, 351 U.S. 192, 203 (1956); *FCC v. Pottsville Broadcasting Co.*, 309 U.S. 134, 138 (1940).

⁹⁸ *National Broadcasting Co. v. United States*, 319 U.S. 190, 219 (1943).

⁹⁹ Unfortunately, given the FCC’s less than vigilant approach to enforcing the law to prevent RBOC anticompetitive conduct, the FCC’s assurances that aggrieved parties may file a complaint to challenge the RBOCs’ special access rates will probably not provide much comfort. *Pricing Flexibility Order* at ¶ 41. Indeed, a review of recent major enforcement actions by the FCC (which are supposed to be one of the centerpieces of Chairman Michael Powell’s agenda for the FCC) reveals that these are not true punitive actions, but are instead the administrative equivalent of a “no contest” plea – i.e., there is no formal record kept of the proceeding and guilty parties are only required to make a “voluntary contribution to the U.S. Treasury” as part of the settlement. As a result, the FCC has very deliberately refused to make an explicit finding of fact. As a legal matter, therefore, these settlements have little or no probative weight in a subsequent criminal or civil

(Footnote Continued. . . .)

As the D.C. Circuit recognized over twenty years ago: “Complex regulation must still be credible regulation” and any failure by the FCC to meaningfully enforce the Communications Act deprives “regulated entities, their competitors [and] the public of rights and economic opportunities without the due process the Constitution requires”.¹⁰⁰ Accordingly, it should come as no surprise that both the Communications Act and the Telecommunications Act of 1996 are replete with requirements that the Commission undertake periodic reviews of its regulations and to evaluate concurrently the economic health of the various industries under its jurisdiction.¹⁰¹

Indeed, the long-term sustainability of decisions vital to the health of the telecommunications sector by an administrative agency that chooses to avoid “undue administrative burdens” rather than carrying out their enabling statutes is dubious. More importantly, when an administrative agency openly admits to a lackadaisical and analytically imperfect approach, then it also behooves the Commission to examine and monitor the impacts of the decisions the FCC makes today on the long-term structure of the industry as a whole¹⁰², particularly when

court of law. Besides, if a firm perceives it will make one dollar more by deterrence than by competition, then that firm will *always* choose deterrence. For a representative list of these actions, T. Randolph Beard, George S. Ford and Lawrence J. Spiwak, *Why ADCo? Why Now? An Economic Exploration into the Future of Industry Structure for the “Last Mile” in Local Telecommunications Markets*, 54 FCLJ 421, 436 n. 44 (2002). And, as per course, the FCC has not deviated from such an approach in its most recent enforcement action either. *In re Qwest Communications International, Inc., Order*, FCC 03-107, __ FCC Rcd __ (rel. May 7, 2003).

¹⁰⁰ *MCI v. FCC*, 627 F.2d 322, 340-41 (D.C. Cir. 1980); see also *Telecommunications Research and Action Center v. FCC*, 750 F.2d 70 (D.C. Cir. 1984).

¹⁰¹ See, e.g., Section 11 – *Regulatory Reform*, 47 U.S.C. § 161; Section 218 – *Inquiries into Management*, 47 U.S.C. § 218; Section 219 – *Annual and Other Reports*, 47 U.S.C. § 219; Section 257 – *Market Entry Barriers Proceeding*, 47 U.S.C. § 257; Section 403 – *Inquiry by Commission on its Own Motion*, 47 U.S.C. § 403; Communications Act § 628(g) – *Development of Competition and Diversity of Video Programming Distribution*, 47 U.S.C. § 548(g); Section 706 – *Advanced Telecommunications Incentives*, 47 U.S.C. § 157; and *c.f.*, Jerry Duvall & Michael Pelcovits, *Reforming Regulatory Policy for Private Line Telecommunications Services: Implications for Market Performance*, FCC OFFICE OF PLANS AND POLICY WORKING PAPER NO. 4 (1980) (analysis should focus on market performance, rather than on market participants’ residual market power).

¹⁰² See *supra*, text discussion and citations in Section I.

ex post analysis suggests a significant regulatory failure as that found in the Special Access context.¹⁰³

Like it or not, U.S. consumers deserve far more than a perfunctory “Ron Popiel – Chicken Rotisserie Oven” approach to the real problem of ILEC market power where the FCC simply “sets it and forgets it.” As such, it is incumbent upon Chairman Powell and the FCC to fulfill their core function under the Communications Act—*i.e.*, prevent dominant firms under their jurisdiction from gouging consumers and stymieing competition via the unfettered abuse of their market power – both immediately in the Special Access context as well as in their forthcoming broadband proceedings.

Equally as important, if the evidence suggests a regulatory failure to mitigate the incumbents’ market power that produces clear adverse effects on U.S. consumer welfare and the economy, then we come back full circle regarding the FCC’s overall analytical approach towards the complex issue of how we should move from “one” to “many” – *i.e.*, given the obvious fact that the ILEC’s can and will seek to exercise their market power to “deny, delay and degrade” new entry, then a more thorough look at the incumbents’ market power by the Commission in the first instance is in order as the FCC attempts to facilitate Chairman Powell’s vision of a “Digital Migration.”

¹⁰³ See, *e.g.*, Separate Statement of Commissioner Michael Copps, *In re Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*:

Congress requires the Commission annually to “review competitive market conditions with respect to commercial mobile services” and “include in its annual report an analysis of those conditions,” in order to perform an “analysis of whether or not there is effective competition.” I believe that the Commission could do far better. The Report’s contains insufficient data. Much of the limited data included are unverifiable and are derived from sources with a stake in the outcome of our determination. And the Commission does not establish any standard for determining when “effective competition” exists or even to define what “effective competition” is. These problems leave the Report vulnerable to the charge of being results-oriented, and mean that the hard and good work of the Commission’s staff is underutilized.

Table 1. Price Changes for Special Access Services

(DS0-Digital, DS1, and DS3, Optional Pricing Plan Only, Jan. 31, 2003)

| | BellSouth | SBC | Verizon | Qwest |
|---------------------------|-----------|---------|---------|---------|
| DS0-Digital | | | | |
| Average Regulated Price | \$202 | \$126 | \$170 | \$140 |
| Average Deregulated Price | \$202 | \$155 | \$220 | \$158 |
| Average Price Increase | 0% | 23% | 29% | 14% |
| DS1 | | | | |
| Average Regulated Price | \$380 | \$338 | \$448 | \$332 |
| Average Deregulated Price | \$391 | \$371 | \$510 | \$399 |
| Average Price Increase | 3% | 10% | 14% | 20% |
| DS3 | | | | |
| Average Regulated Price | \$4,075 | \$2,562 | \$3,421 | \$2,783 |
| Average Deregulated Price | \$4,575 | \$2,817 | \$3,752 | \$2,783 |
| Average Price Increase | 12% | 10% | 10% | 0% |

Table 2. Summary of Regression Results(asym. *t*-scores in parenthesis)

| | DS0, Month-to-Month | DS0, Opt. Pricing Plan | Variable | Mean St. Dev. |
|------------|------------------------|---------------------------|------------|-------------------|
| α_1 | 0.00001 (9.00) | 0.00001 (7.86) | <i>Y</i> | 40827 (6037.9) |
| α_2 | 0.292 (6.30) | 0.261 (4.87) | <i>Z</i> | 0.276 (0.14) |
| α_3 | 0.9346 (6.64) | 0.532 (3.23) | <i>R</i> | 0.747 (0.05) |
| β_0 | 0.3392 (7.40) | 0.455 (6.38) | Constant | ... |
| β_1 | -0.0014 (-2.64) | -0.0017 (-2.51) | μ_L | 37.53 (25.82) |
| β_2 | 0.00046 (2.66) | 0.00048 (2.24) | σ_L | 40.61 (64.46) |
| β_3 | 0.0084 (5.21) | 0.0121 (4.90) | μ_T | 11.83 (4.73) |
| β_4 | -0.0037 (-5.25) | -0.00488 (4.90) | σ_T | 14.96 (8.08) |
| P_D | 260.89 (73.38) | 181.54 (30.99) | | |
| P_R | 230.69 (56.65) | 158.80 (28.08) | | |
| R^2 | 0.994 | 0.993 | | |
| F-Stat | 4028.9 | 3282.4 | | |
| N | 188 | 188 | | |